

SPECIFICATION

Device Name : Diode Module with Brake

Type Name : 6R1MBi75P-160

Spec. No. : MS5T0195

This material and the information herein is the property of Fuji Electric Co., Ltd. They shall be neither reproduced, copied, lent, or disclosed in any way whatsoever for the use of any third party nor used for the manufacturing purposes without the express written consent of Fuji Electric Co., Ltd.

Fuji Electric Co., Ltd.
Matsumoto Factory

	DATE	NAME	APPROVED	Fuji Electric Co., Ltd.		
DRAWN	Jul. - 5 - '01	<i>T. Kojima</i>	<i>T. Miyasaka</i>	DWG. NO.	MS5T0195	1 / 7
CHECKED	July - 5 - '01	<i>S. Matsu</i>				

Revised Records

Date	Classi- fication	Ind.	Content	Applied date	Drawn	Checked	Approved
July-5-01	enactment	—	—	issued date	—	S. Matsuda	T. Miyasaka

This material and the information herein is the property of Fuji Electric Co., Ltd. They shall be neither reproduced, copied, lent, or disclosed in any way whatsoever for the use of any third party nor used for the manufacturing purposes without the express written consent of Fuji Electric Co., Ltd.

Ratings and characteristics of diode module with Brake

Type : 6R1MBi75P-160

1. Maximum rating (at Tc=25°C unless otherwise specified)

Item		Symbol	Condition	Max.	Unit	
Converter	Repetitive peak reverse voltage	VRRM		1600	V	
	Non-repetitive peak reverse voltage	VRSM		1760	V	
	Average output current	Io	50/60Hz sine wave Tc=115°C	75	A	
	One cycle surge current (50Hz)	IFSM	From rated load	600	A	
	I ² t	I ² t	From rated load	1440	A ² s	
	Operation junction temperature	Tj		-40 to +125	°C	
Brake	Collector-Emitter voltage	VCES		1400	V	
	Gate-Emitter voltage	VGES		± 20	V	
	Collector current	Ic	DC	Tc=25°C	50	A
				Tc=75°C	35	
		Icp	1ms	Tc=25°C	100	A
				Tc=75°C	70	
	Collector power dissipation	Pc	1 device	240	W	
	Repetitive peak reverse voltage	VRRM		1400	V	
	Operation junction temperature	Tj		150	°C	
	Storage junction temperature	Tstg		-40 to +125	°C	
Isolation voltage	Viso	AC : 1min.	3000	V		
Mounting screw torque		M5 screw	2.0 to 2.5	N·m		

2. Electrical characteristics (at Tj=25°C unless otherwise specified)

Item		Symbol	Condition	min.	typ.	Max.	Unit
Co.	Forward voltage	VFM	Tj=25°C, IFM=75A			1.35	V
	Reverse current	IRRM	Tj=150°C, VR=VRRM			15	mA
Brake	Zero gate voltage Collector current	ICES	VGE=0V, VCE=1400V			1.0	mA
	Gate-Emitter leakage current	IGES	VCE=0V, VGE=± 20V			200	nA
	Collector-Emitter saturation voltage	VCE(sat)	VGE=15V, Ic=35A		2.4	2.8	V
	Turn-on time	ton	Vcc=800V IC=35A		0.35	1.2	μs
		tr			0.25	0.6	
	Turn-off time	toff	VGE=± 15V RG=33Ω		0.45	1.0	μs
		tf			0.08	0.3	
Reverse current	IRRM	VR=1400V			1.0	mA	

3. Thermal characteristics

Item	Symbol	Condition	min.	typ.	Max.	Unit	
Thermal resistance	Rth(j-c)	Converter	Per total loss			0.16	°C/W
			Per each device			0.96	
		Brake IGBT (1 device)			0.70		
Thermal Resistance (Case to fine)	Rth(c-f)	with thermal compound			0.08	°C/W	

4. Outline drawing and equivalent circuit are shown in page 4/7.

Fuji Electric Co.,Ltd.

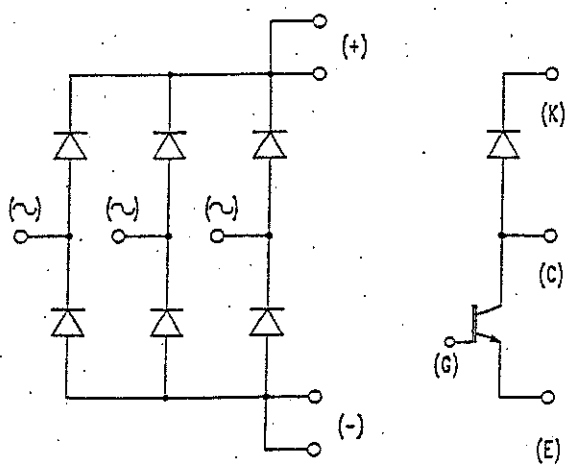
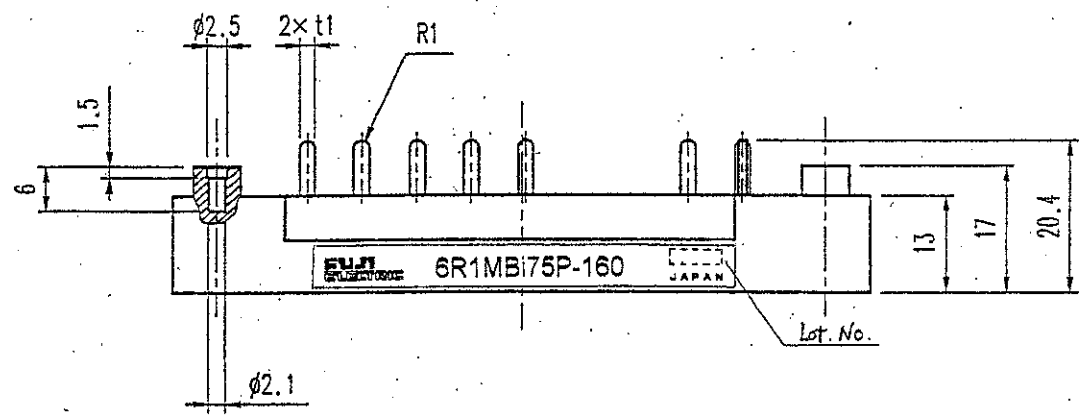
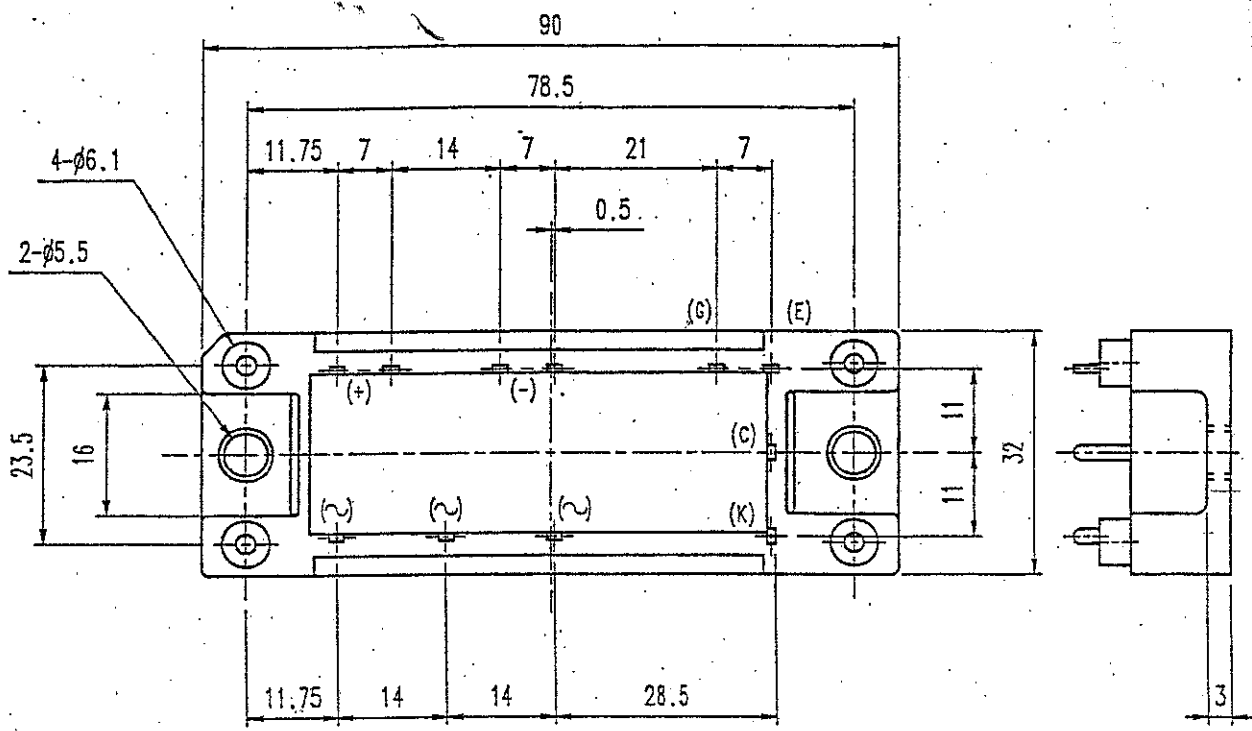
DWG. NO.

MS5T0195

3 / 7

H04-004-03

This material and the information herein is the property of Fuji Electric Co., Ltd. They shall be neither reproduced, copied, lent, or disclosed in any way whatsoever for the use of any third party nor used for the manufacturing purposes without the express written consent of Fuji Electric Co., Ltd.



Fuji Electric Co., Ltd.

DWG. NO. MS5T0195

4/7

H04-004-03

5. Applicable category

This specification is applied to Diode Module named 6R1MBi75P-160.

6. Storage and transportation notes

- The module should be stored at a standard temperature of 5 to 35°C and humidity of 45 to 75% .
- Store modules in a place with few temperature changes in order to avoid condensation on the module surface.
- Avoid exposure to corrosive gases and dust.
- Avoid excessive external force on the module.
- Store modules with unprocessed terminals.
- Do not drop or otherwise shock the modules when transporting.
- Please connect adequate fuse or protector of circuit between three-phase line and this product to prevent the equipment from causing secondary destruction.

This material and the information herein is the property of Fuji Electric Co., Ltd. They shall be neither reproduced, copied, lent, or disclosed in any way whatsoever for the use of any third party nor used for the manufacturing purposes without the express written consent of Fuji Electric Co., Ltd.

Fuji Electric Co., Ltd.

DWG. NO.

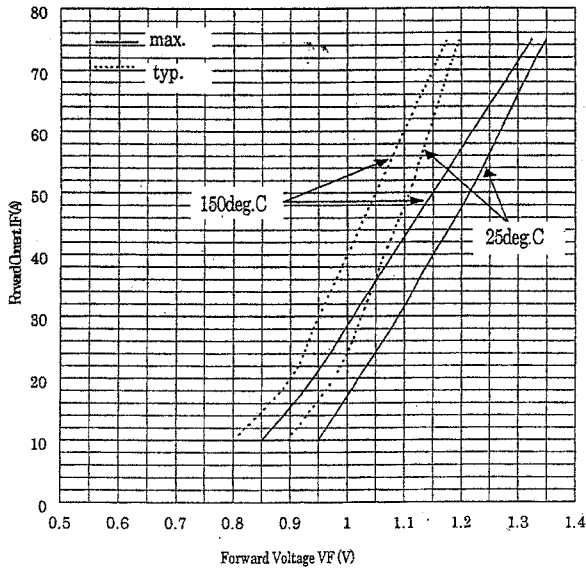
MS5T0195

5 / 7

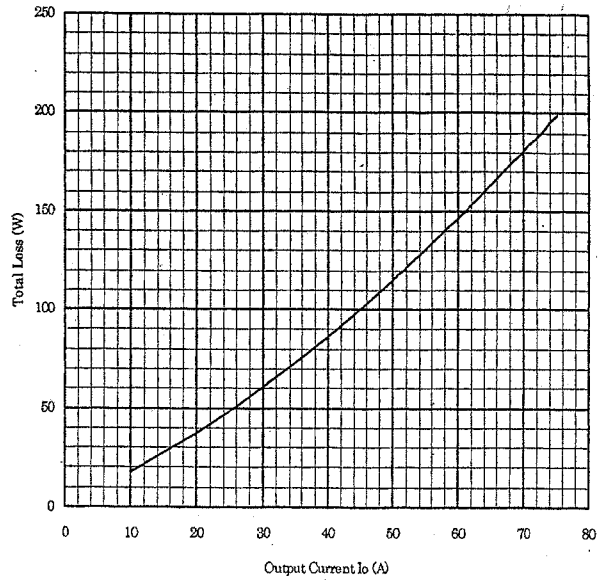
H04-004-03

This material and the information herein is the property of Fuji Electric Co., Ltd. They shall be neither reproduced, copied, lent, or disclosed in any way whatsoever for the use of any third party nor used for the manufacturing purposes without the express written consent of Fuji Electric Co., Ltd.

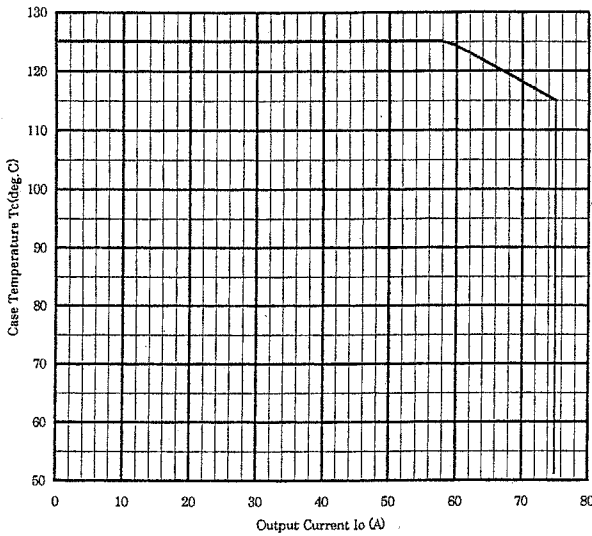
Forward Characteristics



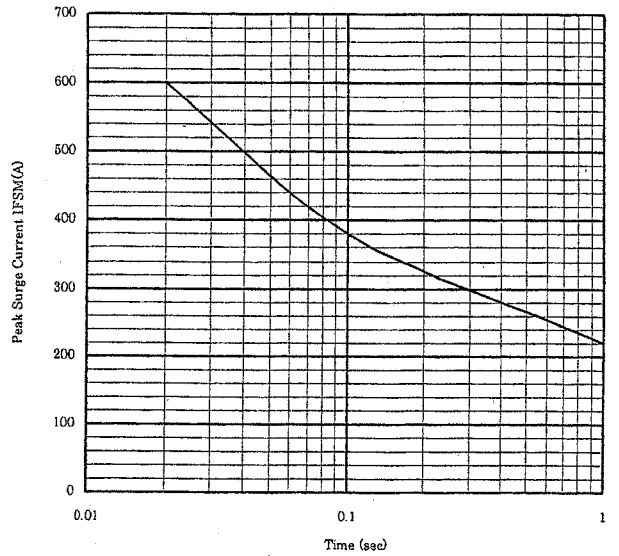
Output Current - Total Loss



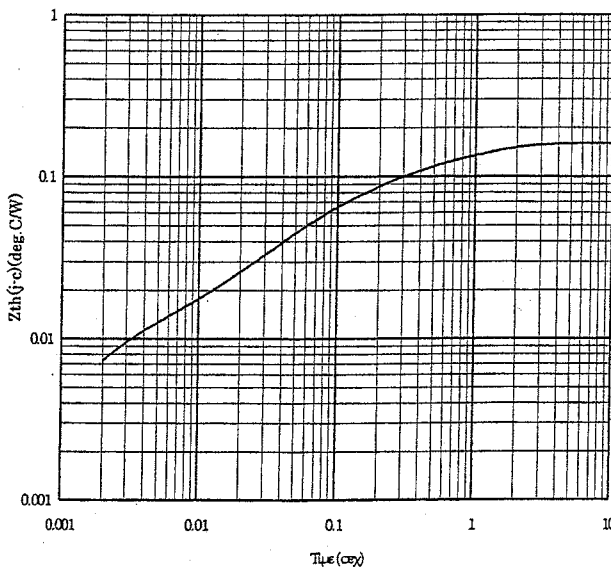
Output Current - Case Temperature



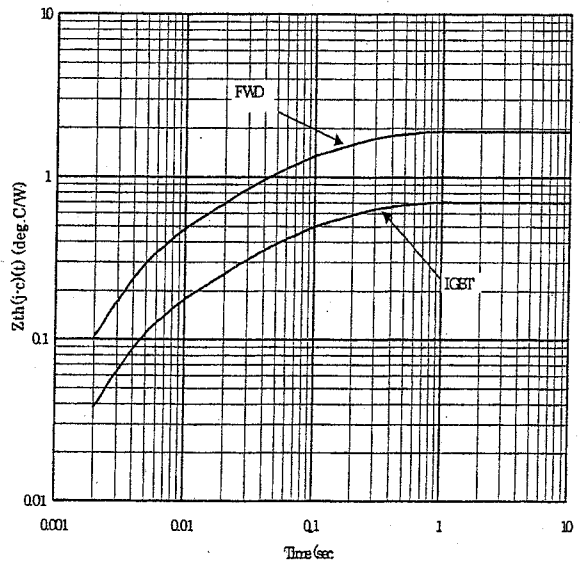
Surge Current



Transient Thermal Impedance

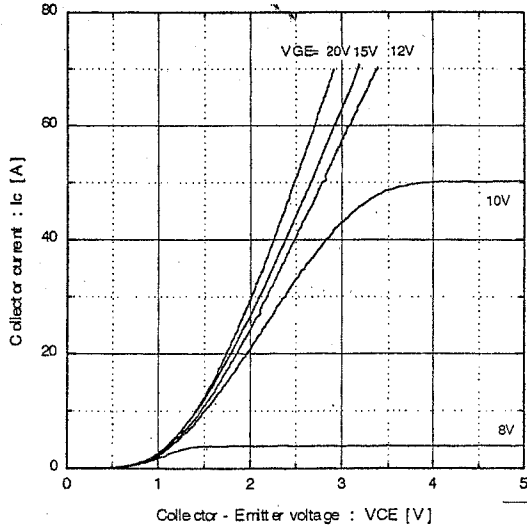


[Base] Transient Thermal Impedance

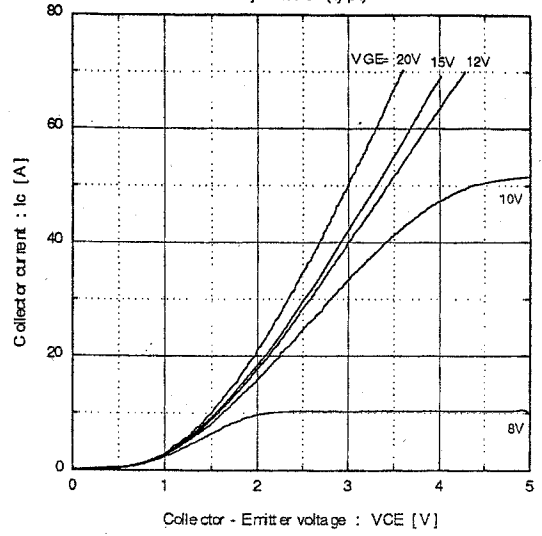


This material and the information herein is the property of Fuji Electric Co. Ltd. They shall be neither reproduced, copied, lent, or disclosed in any way whatsoever for the use of any third party nor used for the manufacturing purposes without the express written consent of Fuji Electric Co., Ltd.

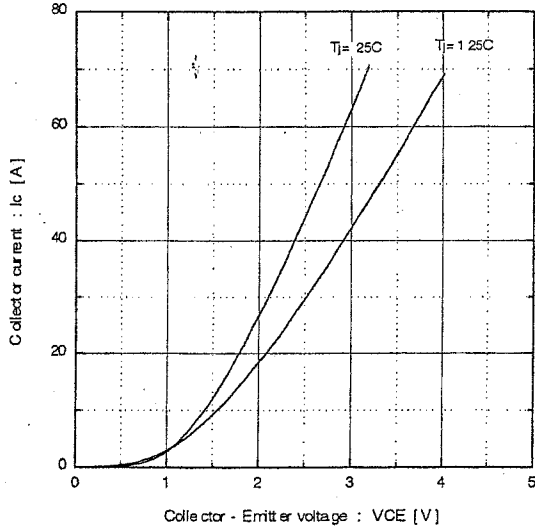
[Brake]
Collector current vs. Collector-Emitter voltage
 $T_j = 25^\circ\text{C}$ (typ.)



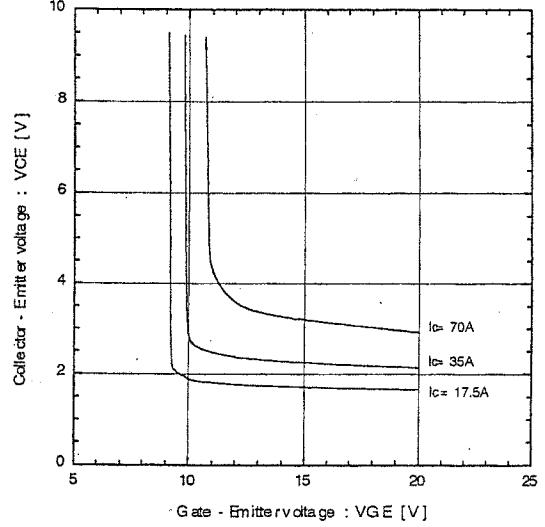
[Brake]
Collector current vs. Collector-Emitter voltage
 $T_j = 125^\circ\text{C}$ (typ.)



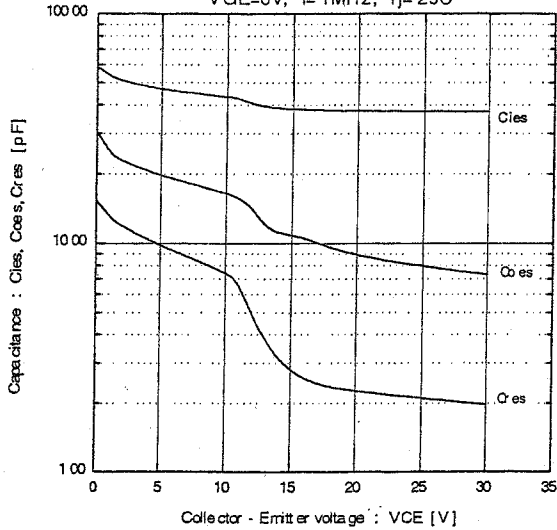
[Brake]
Collector current vs. Collector-Emitter voltage
 $V_{GE} = 15\text{V}$ (typ.)



[Brake]
Collector-Emitter voltage vs. Gate-Emitter voltage
 $T_j = 25^\circ\text{C}$ (typ.)



[Brake]
Capacitance vs. Collector-Emitter voltage (typ.)
 $V_{GE} = 0\text{V}$, $f = 1\text{MHz}$, $T_j = 25^\circ\text{C}$



[Brake]
Dynamic Gate charge (typ.)
 $V_{CC} = 800\text{V}$, $I_c = 35\text{A}$, $T_j = 25^\circ\text{C}$

